

- ▶ Four Digital Inputs / Two for High Speed Counting
- ▶ Six Digital Outputs / For Configurable as PWM
- ▶ PWM Resolution Selectable 8 or 16 Bit
- ▶ Output Current Sensing / Feedback
- ▶ SAE J1939 and OptiCAN Connectivity
- ▶ Sealed from Environment
- ▶ RoHS Compliant
- ▶ Quick Disconnect Field Connections
- ▶ Programs using EZ LADDER Toolkit Software
- ▶ Four Analog Inputs / 0-20mA or 0-5VDC
- ▶ Visual Status Indicator (Watchdog LED)
- ▶ Output Monitoring for Overloaded / Open Circuit



HEC-4000-E-R Programmable Logic Controller

HEC-4000-E-R Series Controllers allow for programmable intelligence under less than ideal conditions. Features include a sealed, water-tight enclosure, high speed counting, and CAN network communication with SAE J1939 and OptiCAN. Based on patented PLC on a Chip® technology, the controllers are easy to apply and program using the EZ LADDER® Toolkit PC based software. These Harsh Environment Controllers are suitable for direct mounting on machines and are an ideal choice for mobile applications.

Typical Applications Include:

- ▶ Mobile Equipment
- ▶ Agricultural Equipment
- ▶ Off Road Equipment
- ▶ Remote Locations Monitoring & Control
- ▶ Engine Driven Pumps, Compressors and Generators
- ▶ Proportional Valves

HEC-4000-E-R Series Controller Specifications	
Processor / Memory / Programming	
Processor / Memory / EEPROM	M-Series PLC on a Chip, 12K RAM, 256K Flash, 2792 Bytes EEPROM
Programming	Ladder Diagram / Function Block
Digital & Analog I/O	
Digital Inputs, 8-32VDC	4 Total, Sinking
High Speed Counters ¹	Qty 2, 40KHz Max., Count Up, Sinking
Digital Outputs, 8-32VDC, PWM or On/Off	Qty 6, Sourcing, 4 Amp Maximum (per output pair), 4 Selectable as PWM (8 or 16 bit), PWM Frequency 1.436Hz to 1KHz, PWM Range 5-95%, Over-current protected. Output Voltage = Input Voltage.
Output Current Sensing	PWM Channels provide internal analog current sensing variables for closed loop control
Indicator LEDs	1 Programmable, 1 Watchdog
Analog Inputs	4 Analog Inputs available - Model Dependent as 10-bit, 12-bit or 15-bit at 0-20mADC or 0-5VDC
Communications	
Serial Ports	Programming via Deutsch 'A' Connector 1 RS232 / RS485 / RS422 Configurable Serial Port via M8 4 Pin (Serial Port Models)
Networking	2 CAN Ports, SAE J1939 (Read Only), OptiCAN
Other	
Input Power	8-32VDC
Style / Mounting	Sealed Enclosure / Panel Mount
Connections	2 Deutsch DTM Series (coded A,B) M8 Cable (4 pin) (Serial Port Models)
Dimensions	4.63" x 5.24" x 1.44"
Operating Temperature	-40°C to +80°C with Output Derating based on Temperature (Non-Serial Port Models) -25°C to +80°C with Output Derating based on Temperature (Serial Port Models)
RoHS	RoHS Compliant

1. Counter Inputs are included in the quantity of digital inputs. Counter inputs may be used as counter or standard digital input.

Ordering Information: (see Specifications)

Model #	Description
ALL HEC-4xxx-E-R MODELS	Harsh Environment Controller with 4 DC inputs (2 configurable for High Speed Counter), 6 DC outputs (4 PWM), 4 Analog Inputs (see Analog Options table), 2 CAN Network port for Optican or SAE J1939 connectivity, Output Current Sensing.
ALL HEC-4xx4-E-R MODELS	All HEC-4xxx-E-R base model features plus additional configurable RS232/RS422/RS485 COM Port via M8 cable.

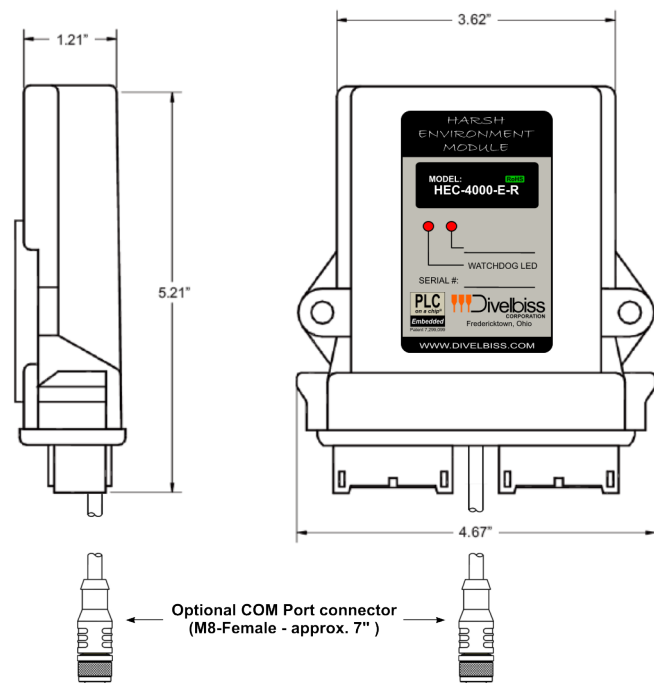
Analog Options:

Model #	Rating	Resolution	Min-Max Integer Values
HEC-400x-E-R	0-20mADC	10 bit	0 - 1023
HEC-401x-E-R	0-5VDC	10 bit	0 - 1023
HEC-410x-E-R	0-20mADC	12 bit	0 - 4095
HEC-411x-E-R	0-5VDC	12 bit	0 - 4095
HEC-420x-E-R	0-20mADC	15 bit	0 - 32767
HEC-421x-E-R	0-5VDC	15 bit	0 - 32767

Optional Hardware Add-ons/Accessories:

Model #	Description
HEC-10 (Includes:)	"A" Keyed Connector Kit 1 DTM06-12SA 12 1062-20-0122 (16-20 AWG crimp sockets) 1 Wedge Lock
HEC-20 (Includes:)	"B" Keyed Connector Kit 1 DTM06-12SB 12 1062-20-0122 (16-20 AWG crimp sockets) 1 Wedge Lock
HEC-CRMP TL	Crimp Tool for HEC-10/20 Pins (DTT-20-0)
HEC-100	"A" Keyed (Gray) Cable assembly with 6ft. flying leads
HEC-110	"B" Keyed (Black) Cable assembly with 6ft. flying leads
HEC-910	Programming Breakout Cable, 9 pin D-sub connector for RS232/Null Modem Connection
126-102860	RS232 Null Modem Programming Cable
EZLDCD-01	EZ LADDER Toolkit Development Software on USB Flash Drive (Free with Controller Purchase)

Dimensions



Programming the Controller

The Harsh Environment Controller PLCs program in Ladder Diagram using the Divebiss EZ LADDER® Toolkit, a Ladder Diagram Development Platform. EZ LADDER software parallels the IEC-61131 standard and provides an easy to use interface.

After a ladder diagram program is developed, it can be downloaded to the HEC controller via the programming port (on the "A" connector). The program is stored on non-volatile FLASH memory and is automatically executed on power up. Once the download is complete, the HEC is successfully programmed and begins executing the program.

Refer to the EZ LADDER Toolkit's User Manual for more detail on creating ladder diagram programs, connecting to targets and downloading the program to targets. The manual can be downloaded from our website: <http://www.divebiss.com>.

The HEC-4xxx-E-R User Manual and EZ LADDER Toolkit can be downloaded from <http://www.divebiss.com>.

Specifications are subject to change without notice.